



MACHAKOS UNIVERSITY

University Examinations for 2022/2023 Academic Year

SCHOOL OF AGRICULTURE, ENVIRONMENT AND HEALTH SCIENCES

DEPARTMENT OF HEALTH SCIENCES

FIRST YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (FOODS, NUTRITION AND DIETETICS)

HFN 144: MACRONUTRIENTS

DATE:

TIME:

INSTRUCTIONS:

This paper consists of two sections A and B

SECTION A

Instructions

- This section has one question
- This question is **COMPULSORY**
- The question is 30 Marks

QUESTION ONE (30 MARKS)

- a) Explain the concept “Protein-sparing effect of carbohydrates” (3 marks)
- b) Respond to the following matters of nutrition concern
- i) Which is healthier and why, fish and vegetable oils or animal fats? (1 mark)
- ii) A man complains of constipation. Which foods should you advise him to include in his diet and why? (1 mark)
- iii) According to a mother, her child doesn't like dairy products. what are the nutritional implications on the child's health? (2 marks)
- c) Using examples explain the complementary action of proteins (4 marks)
- d) Explain why it's crucial to incorporate foods high in omega 3 in a diet (3 marks)
- e) Alcoholic beverages are examples of "empty calories". Explain (2 marks)

- f) Name the simple sugars that are present in the following food items (3 marks)
- i) Table sugar
 - ii) Cheese
 - iii) Sweet potatoes
 - iv) Orange juice
 - v) Yogurt
 - vi) Carrots
- g) Explain why fibers differ from the other polysaccharides (3 marks)
- h) Outline the current recommendations related to inclusion of fats in a diet (3 marks)
- i) Water doesn't provide nutrients yet an important dietary component. Explain (3 marks)
- j) Explain the Acceptable Macronutrient Distribution Range (AMDR) for Adults. (2 marks)

SECTION B:

Instructions

- This section has four (4) question
- Answer any two (2) questions

Each question is 20 Marks

QUESTION TWO (20 MARKS)

- a) You are conducting a dietary assessment on a 42-year female, her 24 hour dietary recall indicates that the client has consumed:
- 170 g Carbohydrate
 - 78 g Fats (lipids)
 - 83g Protein
 - 0 g Alcohol
- i) Calculate her calorie consumption (8 marks)
 - ii) What is the percentage of energy distribution from carbohydrates, fat and protein from her intake (4 marks)
- b) Discuss the causes and consequences of inadequate intakes of proteins (8 marks)

QUESTION THREE (20 MARKS)

- a) Discuss the harm that alcohol intake can cause to organs responsible for processing, absorbing, and digesting nutrients and how it can result in nutrient deficiencies (12 marks)
- b) Mary's total caloric intake for the day was 1800 kcals. It consisted of 55% carbohydrates, 20% protein, and 25% fat. Calculate the gram amount for each macronutrient for this day (8 marks)

QUESTION FOUR (20 MARKS)

- a) For the following, define their action, where they are released and how they aid digestion (15 marks)
- i) Bile
 - ii) Chymotrypsin
 - iii) Hydrochloric acid
 - iv) Salivary amylase
 - v) Pancreatic Lipase
- b) Describe the absorption of proteins in the human body (5 marks)

QUESTION FIVE (20 MARKS)

- a) Advice on family food preparation and procurement procedures that can reduce saturated fat intake (10 marks)
- b) In the human body, water serves as a lubricant and a shock absorber. Discuss. (10 marks)